Agricultural Management: Integrated Pest Management (on non-native landscapes)

- Policy Guidance
    - *City of Boulder IPM Policy*
        - *Requires a hierarchical approach to pest management, beginning with prevention. Chemical controls are assumed to be potentially harmful to human and environmental health and should be the very last step after other methods have been found ineffective or unfeasible. Regardless of whether non-chemical or chemical controls are used to manage pests, pests should be mapped and monitored and a threshold established before treatment is considered. The IPM Policy requires that the following strategies be used in order, with prevention being the most effective and preferred strategy.*
            i. Prevention
            ii. Cultural
            iii. Mechanical
            iv. Biological
            v. Chemical
- Existing Conditions
    - *The following can detrimentally effect crop yield and agricultural productivity:*
        - *Weeds*
        - *Fungal pathogens*
        - *Bacterial pathogens*
        - *Viruses*
        - *Insects*
    - *Lessees are responsible for IPM on their leased property.*
        - *Organic operators typically focus on prevention, cultural, and mechanical techniques with Organic Materials Review Institute (OMRI) approved chemicals as a last resort.*
        - *Conventional operators vary in their approach depending on the crop.*
            - *Conventional grass hay is typically not sprayed.*
            - *Conventional alfalfa is typically treated once a year for alfalfa weevil.*
            - *Commodity annual crops vary, but can be treated for weeds, insects and fungal pathogens. Applications may range from annual to as needed based on economic threshold (cost of application versus crop quality and quantity loss).*
    - *OSMP has encouraged non-chemical pest management, when possible, and least persistent and least toxic pesticide, when chemical treatment is determined necessary.*
    - *Existing OSMP review and approval/denial process for chemical treatments:*
        - *Lessee is required to provide the following information upon their request:*
            - *Chemical name*

            - *Application rate*
            - *Target pest*
            - *Acres*
        - *Staff often conducts a site visit to verify pest presence*
        - *Staff evaluates the proposed treatment taking into account the following:*
            - *Consistency with City IPM Policy*
            - *Concentration and rate applied*
            - *Application method*
            - *Amount used*
            - *Cumulative risk to non-target organisms, human health and the environment.*
        - *Staff approves/denies proposed chemical treatment*
        - *Staff posts notification of chemical application on pesticide hotline and on the property*
        - *Staff tracks the amount of pesticide product used at each site by target pest.*
    - *Current pesticide usage on OSMP agricultural properties*
        - *Acres, as a percentage of total agricultural acreage*
- Objective(s)
    - *Reduce state-listed noxious weeds on agricultural properties*
    - *Reduce or eliminate pesticides, wherever possible*
        - *When reduction or elimination of pesticides is not possible, use the least toxic, least persistent pesticide*
- Management Strategies
    - *Encourage lessees to explore Best Management Practices focusing on preventative, cultural and mechanical methods that are best suited to their particular property, such as:*
        - *Integrating livestock*
        - *Using bubblers to remove weed seeds from irrigation water*
        - *Planting non-crop barriers and strips to provide habitat for wildlife and natural enemies, prevent soil and water erosion and buffer the use of any pesticides off-site.*
        - *Incorporating conservation tillage practices*
        - *Planting cover crops to enhance soil fertility and assist with natural pest controls.*
        - *Rotating crops and diversifying fields with intercropping.*
        - *Growing crops suited to the local environment.*
    - *Promote adoption of these Best Management Practices by exploring cost-sharing, lease reductions, and collaboration with NRCS.*
    - *Prioritize management of state-listed noxious and invasive species, especially in crop buffer areas.*
        - *Planning and implementation to be done in partnership with lessees via Property (or lease) Management Plans*
    - *OSMP review and approval/denial process for chemical treatments:*
        - *Lessee request for application*
            - *Chemical name*

        - *Application rate*
        - *Target pest*
        - *Acres*
    - *Mandatory site visit and staff verification of pest presence*
    - *Verify economic threshold loss potential has been reached (if applicable)*
    - *Staff evaluates the proposed treatment taking into account the following:*
        - *Consistency with City IPM Policy*
        - *Concentration and rate applied*
        - *Application method*
        - *Amount used*
        - *Cumulative risk to non-target organisms, human health and the environment.*
        - *IPM Prime – method for evaluating toxicity*
    - *Staff approval/denial of proposed chemical treatment*
    - *Staff determination of appropriate buffers by taking into account:*
        - *Drift potential*
        - *Proximity to neighbors, schools*
        - *If the location presents risks to aquatic life and/or wildlife*
    - *Staff posts notification of chemical use on pesticide hotline and on property.*
    - *Staff tracks the amount of pesticide product used at each site by target pest.*
- Measures of Success
    - *Decrease in volume and acreage of pesticide applications (pesticide usage will never be eliminated without eliminating certain crops)*
    - *Decrease in volume of most toxic pesticide applications*
    - *Proportion of operations in compliance with established Property (or lease) Management Plans (addresses IPM)*
    - *Decrease in state-listed noxious and invasive weeds on agricultural properties.*
- Research Opportunities
    - *Alternatives for Warrior II for alfalfa weevil management*
    - *Rx grazing for weed management on non-native grasslands*
    - *Non-chemical control options in commodity crops*
- Estimated Cost(s)
    - *$-$$*
        - *Less than $10,000 - $49,999 for possible program for cost-sharing of reduced risk chemicals and additional staffing for mandatory scouting*